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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,037	04/24/2006	Willy Marrecan	016782-0351	4400
22428 7590 06/09/2009 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			EXAMINER SYKES, ALTREV C	
			ART UNIT 1794	PAPER NUMBER
			MAIL DATE 06/09/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/573,037	Applicant(s) MARRECAU, WILLY	
	Examiner ALTREV C. SYKES	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 1-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060322</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's election with traverse of Group II, claims 18-31 in the reply filed on March 20, 2009 is acknowledged. The traversal is on the ground(s) that Imamura demonstrates a metal fiber made of a single alloy, i.e., a stainless steel, not a metal fiber made of first metal or metal alloy M1 and a second metal or metal alloy M2, as recited in claims 1 and 18.

In the case that the assertion of applicant is correct with respect to the Imamura et al. reference, examiner notes that the inventions listed as Groups I-II lack unity *a priori* as there is subject matter not common to all claims.

Specifically, Group II is directed to a metal fiber having a first zone being composed of a first metal or metal alloy M1, and a second zone being composed of a metal or metal alloy M2, said M1 being different from said M2. This feature is missing from Group I since the claims do not require that M1 and M2 be different for Group I. The inventions lack the same or corresponding special technical features and thus lack unity.

2. Where a group of inventions is claimed in one and the same international application, the requirement of unity of invention referred to in Rule 13.1 shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical

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features” shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art. See MPEP 1850.

3. The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 21-24 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites the limitation "said second zone and said third zone". There is insufficient antecedent basis for this limitation in the claim. Claim 21 depends on claim 18 which does not recite a third zone.

Claim 22 recites the limitation "said M3". There is insufficient antecedent basis for this limitation in the claim. Claim 22 depends on claim 18 which does not recite M3.

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Claim 23 recites the limitation "said M3 is present as a metal oxide". There is insufficient antecedent basis for this limitation in the claim. Claim 23 depends on claim 18 which does not recite a metal M3.

Claim 24 recites the limitation "said M2 is equal to M3". There is insufficient antecedent basis for this limitation in the claim. Claim 24 depends on claim 18 which does not recite M3.

Regarding claim 27, it is not clear to examiner how the cross section of the metal fiber can be both substantially rectangular as in claim 26 from which it depends and also substantially square.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 18-20, 22-24, and 29-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Liberman et al. (US 2003/0135971).

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Regarding claims 18, 20, 29, 30, 31 Liberman et al. discloses metallic fibers and more particularly to an improved method of making fine and ultra fine fibers. (See [0003]) Liberman et al. discloses an ultra fine fiber can include a drawn metallic fiber having a diameter less than about 100 nanometers. (See [0009]) Therefore, the fiber diameter of Liberman et al. is noted to be less than 150 μm as claimed by applicant. Liberman et al. discloses the fiber can be a metallic fiber including stainless steel or gold. Alternatively, the metallic fiber can include iron, nickel, platinum, silver, or any alloy thereof. (See [0009]) Liberman et al. discloses the fiber can further include a combination of a first metal with a second component to form a material. The second component can include, for example, boron, carbon, nitrogen, oxygen, aluminum, silicon, phosphorus, sulfur, nickel, copper, palladium, silver, platinum, gold, titanium, rhodium, vanadium, titanium, titanium ethoxide, aluminum sec-but-oxide, and the like. Additionally, the material can include, for example, an alloy. (See [0010]) Examiner notes the use of metal oxides and alloys in the disclosure of Liberman. Liberman et al. discloses that the fiber can also have an outer layer adjacent an outer circumference of the fiber using similar materials as that of the second component. (See [0011]) Liberman et al. discloses the fiber has a longitudinal axis and can include at least a first region and a second region along its longitudinal axis. The first region can have a first characteristic and the second region can have a second characteristic. The first or second characteristic can be an electrical function, including, for example, a conductor, a semiconductor, an insulator, a capacitor, a resistor, an electrode, and the like. (See [0012]) Therefore, examiner finds that Liberman et al. anticipates the use of different metals or alloys for the distinct regions.

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Liberian et al. further discloses the drawing process includes forming a bundle of metallic wires, or claddings containing metallic wires, encasing the bundle within an outer cladding and drawing the outer cladding to reduce the outer diameter thereof and to reduce the cross-section of the metallic wires. (See [0016]) Liberian et al. discloses two or more concentrically aligned materials after drawing may be inter-diffused. (See [0177]) Liberian et al. discloses in one example a plurality of first and second metallic wires having first and second diameters are twisted to form a strand which may be coiled for temporary storage or collected to form an array of strands. (See [0260] and [0261]) Liberian et al. discloses the stranding wire is wrapped about the assembly to bind wrapped assemblies of the metallic wires. (See [0278] and [0279]) Liberian et al. also discloses cladding a plurality of at least two types of metal members with a tube. Each metal member, can have any number of forms, including a metal wire form, a metal coated wire form, a multiple coated wire form, a drawn metal coated wire form, or a drawn multiple coated wire form. The metal members may have varied diameters. The at least two types of metal members are comprised of different metals. (See Fig. 56 and [0316]) Liberian et al. discloses one skilled in the art would recognize that the cladding material may be formed of other components and may be an alloy material or a non-alloy material. The surface properties of the fine metallic alloy fiber can be in accordance with the properties of the cladding material. (See [0341]) In one example the cladding material is selected from the group including low carbon steel, copper, pure nickel and Monel 400 alloy. (See [0342]) Liberian et al. discloses similar materials may be used for the second cladding. (See [0360] and [0362]) As such, examiner has reason to

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believe that the first and second claddings may be of different materials since the reference further discloses that the list is not limited to the specific examples. (See [0342]) Therefore, examiner notes that Liberman et al. discloses a metal fiber comprising at least two distinct regions forming a cross-section as well as at least two types of metal members having multiple claddings which may be different materials. The claim limitations are anticipated.

Regarding claims 19, 22 and 23, one of ordinary skill in the art would readily expect for the aluminum used as the second component to inherently form an alumina or aluminum oxide layer on the surface of the fiber because of oxidation. Further, Liberman et al. discloses the fiber can also have an outer layer adjacent an outer circumference of the fiber. The outer layer of the fiber can contain boron, carbon, nitrogen, oxygen, aluminum, nickel, copper, platinum, silver, titanium ethoxide, aluminum sec-but-oxide, tetra-carbonyl nickel, and the like. (See [0011])

Regarding claim 24, Liberman et al. discloses substantially similar metals for both the second component in the metal fiber and the outer layer, therefore examiner has reason to believe that M2 is anticipated by Liberman et al. to be equal to M3 as claimed by applicant.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
10. Claims 21 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liberman et al. (US 2003/0135971).

Regarding claims 21 and 25-27, Liberman et al. discloses ultra fine fibers produced using the methods disclosed herein can be cylindrical in cross section or can have some other controlled cross section. (See [0407]) One of ordinary skill in the art would have been easily motivated to modify the cross section of Liberman et al. in order to tailor the metal fiber for end use. Liberman et al. discloses the fibers provide height surface area, high strength, and increased holding capacity for the applications too numerous to mention. (See [0314]) Liberman et al. further discloses the first or second zone characteristics can

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be an electrical function, including, for example, a conductor, a semiconductor, an insulator, a capacitor, a resistor, an electrode, and the like. (See [0012]) As such, examiner notes that the position of the second and third zones would depend on the chosen cross section of the fiber. Therefore, it would have been well within the ordinary skill in the art at the time of the invention to provide the zones opposite to each other.

Regarding claim 28, Liberman et al. discloses the fiber can be a metallic fiber including stainless steel or gold. Alternatively, the metallic fiber can include iron, nickel, platinum, silver, or any alloy thereof. (See [0009]) Liberman et al. discloses the fiber has a longitudinal axis and can include at least a first region and a second region along its longitudinal axis. The first region can have a first characteristic and the second region can have a second characteristic. (See [0012]) Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the percent of M1 since it has been held that, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). The burden is upon the Applicant to demonstrate that the claimed percent of M1 is critical and has unexpected results. In the present invention, one would have been motivated to optimize the percent of M1 motivated by the desire to tailor the characteristics of the fiber. Liberman et al. further discloses the first or second characteristic can be an electrical function, including, for example, a conductor, a semiconductor, an insulator, a capacitor, a resistor, an electrode, and the like. (See [0012])

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11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALTREV C. SYKES whose telephone number is (571)270-3162. The examiner can normally be reached on Monday-Thursday, 8AM-5PM EST, alt Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1794

/ACS/
Examiner
5/29/09